An Improved Analysis Of An Optoelectronic Mixer Based Onmetal-Semiconductor-Metal Photodetector

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Summary

A Fourier-series model for the responsivity of an optoelectronic mixer (OEM) based on a metal-semiconductor-metal photodiode (MSM-PD) is presented. The model is valid over the full useful range of the MSM dc bias voltage. Using this model, closed-form expressions, in terms of the ordinary Bessel functions, are obtained for the conversion loss, the carrier-to-noise ratio and the noise figure